

A totally new and radically better fabric architecture that will change the face of computing.

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All existing network architectures are optimized for point-to-point transfers and managed by a network control hierarchy. In these networks, the pathway is the guiding property that both characterizes and limits the data processing system. Removing these limitations has revolutionary implications on network throughput and reliability, but it requires a radically different architectural approach.

Such an approach is one where data transfers are self-directed, requiring no separate control plane to intervene in setting up the path for each transfer. The data itself and the destinations selected by the data according to the destinations' needs or interests are the guiding elements of the system. Because the data, its value and the needs of the recipients change, it is essential that the data paths be free to change, expand and/or contract, in a manner that is transparent to the data sources. Since critical data are typically of interest to multiple recipients, throughput will be maximized if multicast transfers are truly simultaneous, taking no more time to execute than unicast transfers.

Lightfleet DDS

This new architectural approach is embodied in Lightfleet Corporation's Data Distribution System (DDS). DDS enables a radical simplification of the software required to maintain and reconfigure/expand network fabrics. The interconnect also delivers a dramatic increase in processor efficiency and network throughput, enabling new computing applications that were impossible in the past due to the limitations of existing fabric technologies.

Using Lightfleet's approach, messages in a multi-computing environment now have meaning beyond the mere conveyance of data from one point to another. Messages can modify the response of the network to subsequent traffic, optimizing the flow of information within the interconnect fabric and allowing the fabric to dynamically adjust to varying traffic patterns.

Figure 1.
DDS Components.

The Lightfleet expandable DDS consists of one or more data distribution modules (DDMs) that send and receive message packets to and from host bus adapters (HBAs) mounted in commodity computers or blades.

